

Title (en)

Apparatus for manufacturing multiple-ply paper products by knurling

Title (de)

Vorrichtung zum Herstellen von mehrschichtigen Papierprodukten durch Rändeln

Title (fr)

Dispositif pour l'obtention de produits multi-couche en papier par moletage

Publication

EP 1533112 A1 20050525 (EN)

Application

EP 04025879 A 20041102

Priority

IT MI20032279 A 20031124

Abstract (en)

An apparatus for manufacturing multiple-ply paper products by knurling, having a knurling wheel unit constituted by one or more knurling wheels (4), each of which cooperates with a contrast roller (5) in order to decorate by knurling at least one paper ply and in order to decorate and join at least two paper plies. Each knurling wheel is provided with relief patterns (7) arranged so that despite appearing to be separate they allow the knurling wheel to have a continuity of contact with the paper and the contrast roller. <IMAGE>

IPC 1-7

B31F 1/07

IPC 8 full level

B31F 1/07 (2006.01); **B31F 5/02** (2006.01)

CPC (source: EP)

B31F 1/07 (2013.01); **B31F 5/022** (2013.01); **B31F 2201/072** (2013.01); **B31F 2201/0723** (2013.01); **B31F 2201/0733** (2013.01); **B31F 2201/0753** (2013.01); **B31F 2201/0764** (2013.01); **B31F 2201/0782** (2013.01); **B31F 2201/0789** (2013.01)

Citation (search report)

- [XAY] US 5622734 A 19970422 - CLARK HARRY E [US], et al
- [YX] US 2002148578 A1 20021017 - REILLY IAN [GB], et al
- [X] GB 2380447 A 20030409 - SCA HYGIENE PROD GMBH [DE]
- [A] US 6086715 A 20000711 - MCNEIL KEVIN BENSON [US]
- [A] US 2001019757 A1 20010906 - WENDLER ROGER E [US]

Cited by

EP2990194A1; EP3127690A1; EP1790466A1; FR2906184A1; EA015225B1; CN102407614A; JP2017074613A; CN102514243A; IT202100015545A1; CN114603924A; WO2020070060A1; WO2012032555A1; WO2009151544A2; WO2008037878A3; WO2009151544A3; US8114250B2; US8323453B2; ITUB20152765A1; ITUB20169873A1

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